

## ABSTRACT

A time division duplex communication system using code division multiple access transmits a plurality of data signals over a shared spectrum in a time slot. A combined signal is received over the shared spectrum in the time slot. The plurality of data signals are grouped into a plurality of groups. The combined signal is matched filtered based on in part symbol responses associated with the data signals of one of the groups. Data from each data signal in the one group is jointly detected. An interference signal is constructed based on in part the one group detected data. The constructed interference signal is subtracted from the combined signal. Data from the other groups is detected by processing the subtracted signal.